Claims

1. A method of running multiple applications in a computer system on a virtual machine such that the multiple applications appear to the virtual machine as only a single application, comprising the steps of:

running a single environment application on said virtual machine;

loading one or more applications as compiled code into said environment application, each of said one or more applications being assigned to a separate process within the environment application; and

running said one or more applications by running their assigned processes within the environment application, whereby said one or more applications appear to the virtual machine as part of the environment application;

and wherein said step of loading includes the steps of scanning said compiled code for certain predetermined instructions, and making a modification to the compiled code of such predetermined instructions to incorporate at least one other instruction.

2. The method of claim 1, wherein said virtual machine is capable of directly supporting only a single application.

3. The method of claim 2, wherein said predetermined instructions include a system exit call.

4. The method of claim 3, wherein the modification made is to replace the system exit call with a callback to the environment application, said callback acting to kill the process associated with the application from which the callback is received.

5. The method of claim 2, wherein said predetermined instructions include a call to create certain system user interface objects.

6. The method of claim 5, wherein the modification made is to incorporate a call back to the environment application with a reference to the user interface object and the process which created it.

7. The method of claim 6, wherein the environment application maintains a list for each of said one or more applications of any user interface objects associated with it, the environment application being responsive to completion of one of the one or more applications for deleting any user interface objects associated therewith.

8. The method of claim 2, further comprising the step of redirecting system output for the virtual machine to the environment application.

9. The method of claim 8, wherein said predetermined instructions include writing to system output, and said modification comprises adding a tag to the output to identify which of the one or more applications is responsible for the output.

10. The method of claim 2, wherein the step of scanning said compiled code for certain predetermined instructions includes scanning for instructions that change a system variable of the virtual machine.

11. The method of claim 10, further comprising the step, responsive to detecting an instruction that changes a system variable, of launching a new virtual machine to run the application that includes such instruction.

12. A computer system for running multiple applications on a virtual machine such that the multiple applications appear to the virtual machine as only a single application, comprising:

means for running a single environment application on said virtual machine;

means for loading one or more applications as compiled code into said environment application, each of said one or more applications being assigned to a separate process within the environment application; and

means for running said one or more applications by running their assigned processes within the environment

application, whereby said one or more applications appear to the virtual machine as part of the environment application;

and wherein said means for loading includes means for scanning said compiled code for certain predetermined instructions, and means for making a modification to the compiled code of such predetermined instructions to incorporate at least one other instruction.

13. The system of claim 12, wherein said virtual machine is capable of directly supporting only a single application.

14. The system of claim 13, wherein said predetermined instructions include a system exit call.

15. The system of claim 14, wherein the modification made is to replace the system exit call with a callback to the environment application, said callback acting to kill the process associated with the application from which the callback is received.

16. The system of claim 13, wherein said predetermined instructions include a call to create certain system user interface objects.

17. The system of claim 16, wherein the modification made is to incorporate a call back to the environment

application with a reference to the user interface object and the process which created it.

18. The system of claim 17, wherein the environment application maintains a list for each of said one or more applications of any user interface objects associated with it, the environment application being responsive to completion of one of the one or more applications for deleting any user interface objects associated therewith.

19. The system of claim 13, further comprising means for redirecting system output for the virtual machine to the environment application.

20. The system of claim 19, wherein said predetermined instructions include writing to system output, and said modification comprises adding a tag to the output to identify which of the one or more applications is responsible for the output.

21. The system of claim 13, wherein the means for scanning said compiled code for certain predetermined instructions includes means for scanning for instructions that change a system variable of the virtual machine.

22. The system of claim 21, further comprising means, responsive to detecting an instruction that changes a

system variable, for launching a new virtual machine to run the application that includes such instruction.

23. A computer program product comprising computer program instructions in a computer readable medium for implementation on a computer system running a virtual machine, said instructions creating an environment application running on the virtual machine which is capable of running multiple applications on the virtual machine, whereby the multiple applications appear to the virtual machine as only a single application, said environment application comprising:

means for loading one or more applications as compiled code into said environment application;

means for assigning each of said one or more applications to a separate process within the environment application; and

means for launching each of said one or more applications within the process assigned thereto, such that it appears to the virtual machine as part of the environment application;

and wherein said means for loading includes means for scanning said compiled code for certain predetermined instructions, and means for making a modification to the compiled code of such predetermined instructions to incorporate at least one other instruction.

24. The program product of claim 23, wherein said virtual machine is capable of directly supporting only a single application.

25. The program product of claim 24, wherein said predetermined instructions include a system exit call.

26. The program product of claim 25, wherein the modification made is to replace the system exit call with a callback to the environment application, said callback acting to kill the process associated with the application from which the callback is received.

27. The program product of claim 24, wherein said predetermined instructions include a call to create certain system user interface objects.

28. The program product of claim 27, wherein the modification made is to incorporate a call back to the environment application with a reference to the user interface object and the process which created it.

29. The program product of claim 28, wherein the environment application maintains a list for each of said one or more applications of any user interface objects associated with it, the environment application being responsive to completion of one of the one or more

applications for deleting any user interface objects associated therewith.

30. The program product of claim 24, wherein the environment application further comprising means for redirecting system output for the virtual machine to the environment application.

31. The program product of claim 30, wherein said predetermined instructions include writing to system output, and said modification comprises adding a tag to the output to identify which of the one or more applications is responsible for the output.

32. The program product of claim 24, wherein the means for scanning said compiled code for certain predetermined instructions includes means for scanning for instructions that change a system variable of the virtual machine.

33. The program product of claim 32, further comprising means, responsive to detecting an instruction that changes a system variable, for launching a new virtual machine to run the application that includes such instruction.

34. The program product of claim 33, wherein said means for loading comprises a class loader which is a subclass of a system class loader included in the virtual machine.